

REMARKS

The June 25, 2002, Office Action (hereinafter "Office Action") rejected Claims 1-19 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,088,739 to Pugh et al. (hereinafter "Pugh"). Additionally, Claims 1-19 were rejected under the judicially created doctrine of obviousness-type double patenting over then-copending application, now U.S. Patent No. 6,304,879, to Sobeski et al. (hereinafter "Sobeski"). Claims 1-19 remain pending in the application, with Claims 1, 9, 16, 17, and 18 being independent.

Pursuant to 37 C.F.R. § 1.111, and for the reasons set forth below, applicants respectfully request reconsideration and allowance of this application. Prior to discussing the reasons why applicants believe that the claims pending in this application are allowable, a brief description of the present invention and the cited and applied reference is presented. The following discussion of the present invention and the teachings of the applied reference are not provided to define the scope or interpretation of any of the claims of this application. Instead, they are provided to help the U.S. Patent and Trademark Office better appreciate important claim distinctions discussed thereafter.

Summary of the Invention:

The present invention is directed at providing dynamic object behavior for individual objects in an object-oriented environment. Prior to the present invention, an individual object's behavior was statically defined. Thus, only through recoding and recompiling the code defining an object could an individual object's behaviors be modified. For example, an object O may have been programmed and compiled to perform behaviors A and B. In order to add behavior C to object O, behavior C had to be programmed into the code of object O and recompiled. Alternatively, if object O were compiled to have behaviors A, B, and C, object O could not choose to not have behavior C.

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In contrast to this static nature of prior art objects, the present invention provides dynamic object behavior for individual objects. For example, an object O with behaviors A and B may be modified to also exhibit behavior C, without requiring recoding and recompilation of the object. Alternatively, an object O with behaviors A, B, and C may be instantiated to exhibit only behaviors A and B.

According to the present invention, when an object is instantiated, the object obtains its behaviors according to information stored in a data store. Depending on various conditions, including system environment conditions, the object may limit the instantiation of any of the behaviors within the set of possible behaviors in the data store. The behaviors of the object may also be altered in the data store by the object or by some other application, thereby altering the behavior of the object when it is instantiated, without requiring recoding and recompilation of the object.

Summary of the Cited References

U.S. Patent No. 6,088,739 to Pugh

Pugh describes a system and method for dynamic object clustering. A clustering mechanism is used to simulate an entity. At the heart of this clustering mechanism is a composite object, also referred to as a cluster, that permits the addition of other objects called role objects. By adding or removing role objects to the cluster, the simulated entity can exhibit dynamic behavioral changes. The composite object is able to keep track of the roles available within the simulated entity. Additionally, other external objects, such as a producer object, may also be capable of tracking the roles, or behaviors, that the simulated entity possesses.

However, while Pugh discloses that the simulated entity can exhibit dynamic behavior by adding or removing other objects to a cluster, Pugh does not disclose that individual objects possess the ability to modify their own behavior in a dynamic manner, without recoding and recompilation. In other words, according to Pugh, a cluster of objects may dynamically change

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the behavior of the cluster by adding or removing objects, but the behavior of each object in the cluster remains fixed. This is in clear contrast to the present invention, where individual objects may dynamically modify their own behavior.

U.S. Patent No. 6,304,879 to Sobeski

Sobeski discloses dynamic data caching in object-oriented environments. According to Sobeski, external objects may store temporary data or information, also referred to as dynamic properties, within a container object. The container object includes a data object, a data cache object, a controller object, and multiple internal objects. The data cache object temporarily stores data from both internal and external objects. This dynamic data is stored in the container until a command is received to delete the data, or commit the data to a more permanent storage. In this way, the container object "maintains what is known in the art as a dirty state." (Sobeski, Col. 5, lines 51-52.) The data, marked as "dirty," is stored by the object until a command is received to commit the data to storage as described.

Sobeski also refers to both static and dynamic properties of an object. However, Sobeski defines "dynamic properties" as "data that is not permanently associated with the definition of data object 204, as opposed to static properties that always are." (Sobeski, Col. 5, lines 21-23.) Static properties are data that do not change, such as default values. Clearly "properties" in Sobeski are data, not object behaviors.

While Sobeski describes caching data, data that may or may not change, Sobeski does not describe modifying the **behavior** of the individual objects.

The Claims Distinguished

102(e) Rejections

Claim 1

Applicants respectfully submit that Pugh fails to disclose each element of independent Claim 1. In particular, Pugh fails to disclose "an object having a plurality of dynamic behaviors," "a data store to store data regarding the plurality of dynamic behaviors," "an application to instantiate the object from the data stored in the data store regarding the plurality of dynamic behaviors," and "wherein the object instantiates at least one of the plurality of dynamic behaviors."

As previously discussed, Pugh discloses adding and subtracting role objects to a cluster of objects in order to create dynamic behavior modification of a simulated, collective entity. However, while Pugh discloses that the simulated entity, as a whole, can exhibit dynamic behaviors, Pugh does not disclose that each object within the cluster has dynamic behaviors. In contrast, the present invention is not directed at an object cluster, but rather at a single object, that single object having dynamic behaviors. Thus, the present invention makes dynamic behavior possible with single objects, whereas Pugh requires a cluster of objects to achieve dynamic behavior.

Because Pugh does not disclose a single object exhibiting, or having, a plurality of dynamic behaviors, Pugh can not disclose a "data store to store data regarding the plurality of dynamic behaviors" for the single object. Similarly, Pugh also can not disclose "instantiat[ing] the object from the data stored in the data store regarding the plurality of dynamic behaviors." Still further, Pugh can not disclose that a single object, when instantiated, also instantiates or implements at least one of the plurality of dynamic behaviors from the data store. In sum, while Pugh may achieve dynamic behavior through a cluster of many objects, Pugh does not disclose that a single object exhibits a plurality of dynamic behaviors.

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For the reasons described above, applicants respectfully assert that Pugh fails to disclose each element of independent Claim 1. Accordingly, applicants request that the 35 U.S.C. § 102(e) rejection of Claim 1 be withdrawn and the claim allowed.

Claims 2-8

As to dependent Claims 2-8, applicants respectfully submit that because Pugh fails to disclose each element of independent Claim 1, upon which Claims 2-8 depend, Pugh also fails to disclose each element of Claims 2-8, especially when considered in conjunction with Claim 1. Accordingly, applicants respectfully request that the 35 U.S.C. § 102(e) rejection of Claims 2-8 be withdrawn and the claims allowed.

Claims 9-19

For the same reasons discussed above in regard to Claim 1, applicants respectfully assert that Pugh fails to disclose each element of Claims 9-19. In particular, while Pugh discloses a cluster of static objects together simulating an entity having dynamic behaviors, Pugh does not disclose a single object having a plurality of dynamic behaviors.

Accordingly, applicants assert that Pugh fails to disclose each element of Claims 9-19. Applicants respectfully request that the 35 U.S.C. § 102(e) rejections of Claims 9-19 be withdrawn and the claims allowed.

Obviousness-Type Double Patenting Rejection

In regard to the obviousness-type double patenting rejection of Claims 1-19, applicants respectfully submit that the present invention is patentably distinct from Sobeski. As discussed, Sobeski describes a data cache object capable of temporarily storing dynamic data. In contrast, the present invention is directed at dynamic behaviors of an individual object.

Additionally, applicants respectfully assert that the present invention would not be obvious to those of ordinary skill in the art over Sobeski. As previously described, Sobeski is directed at temporarily storing data associated with an object, while the present invention is

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directed at dynamically altering the behavior of an object-oriented object. Applicants assert that maintaining a dirty state for an object's data is not the same as modifying the object's manifest behaviors.

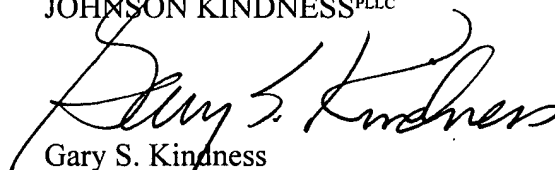
For the reasons stated above, applicants respectfully assert that the present invention is patentably distinct from that disclosed in Sobeski. Accordingly, applicants request that the double patenting rejection of Claims 1-19 be withdrawn and the claims allowed.

CONCLUSION

In view of the amendments and remarks above, the applicants respectfully submit that the present application is in condition for allowance. Reconsideration and reexamination of the application, as amended, and allowance of the claims at an early date are solicited. If the Examiner has any questions or comments concerning the foregoing response, the Examiner is invited to contact the applicants' undersigned attorney at the number below.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE SEPTEMBER 25, 2002

In the Specification:

The paragraph beginning at page 1, line 4, has been amended as follows:

This application is related to the following applications, which are hereby incorporated by reference: "Object Model for Object-Oriented Computing Environments," [[SLWK docket 777.169US1],] U.S. Application No. 09/200,489 and "Dynamic Data Cache for Object-Oriented Computing Environments," [[SLWK docket 777.171US1]] U.S. Patent No. 6,304,879.

The paragraph beginning at page 7, line 1, has been amended as follows:

This is accomplished in one embodiment as follows:

- 1) an object name is retrieved from the registry;
- 2) the object is instantiated;
- 3) if it has a behavior interface, then such an interface is added directly to the object;
- 4) if it has an add-more-behaviors interface, it calls the method associated with this interface, passing to the method the object itself;
- 5) the preceding step/act is repeated until there are no more entries; and,
- 6) the object itself is now capable of adding behaviors.

The paragraph beginning at page 7, line 17, has been amended as follows:

The application 202 is, in one embodiment, an application program, such as a word processing program, a web browser program, etc. The application 202 as shown in FIG. 2 is instantiating the object 204 by issuing a CoCreateInstance() command, represented by arrow 208 and as known within the art. The results in the instantiation of the object 204, using the object behaviors as the data 206 thereregarding is stored in the registry 200, as represented by arrow 210.